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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,708	08/13/2001	Hirohiko Nishiki	SLA 0536	8902

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EXAMINER	
SEFER, AHMED N	

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/929,708	NISHIKI, HIROHIKO	
	Examiner	Art Unit	
	A. Sefer	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *20-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on April 04, 2004 has been entered; no new claims haven been added.

Response to Arguments

2. Applicant's arguments filed April 04, 2004 have been fully considered but they are not persuasive.

3. Applicants argue that Matsushita et al. ("Matsushita") USPN 5,459,335 fails to teach a process of forming trenches as recited in claim 1. Specifically, Applicants claim the prior art does not teach a process of forming trenches in rigid support substrate 5. And applicants refer to the Office Action, on page 8, paragraph 1 to support their claim.

4. In response, the Examiner would like to reiterate that Matsushita does not disclose the step of forming a support substrate with trenches as recited in claim 10. And in response to applicant's argument that the reference(s) fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., forming trenches in rigid support substrate) are not recited in the rejected claim(s). To the contrary, claim 1 recites "forming a first rigid support substrate with trenches." Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

5. Applicants further argue that Pai et al. ("Pai") USPN 6,612,88 and Matsui et al. ("Matsui") USPN 6,191,007 are concerned with providing advantages other than those cited by applicants.

6. In response, the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1, 4, 11 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation, "in response to curing the adhesive" recited in claims 1, 4, 11 and 14 is not disclosed in the specification to enable one skilled in the art to make and/or use the invention. Without this information it would take undue experimentation to make and use the claimed invention.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1, 3, 8 and 9, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Ge et al. ("Ge") USPN 5,892,558.

Ge discloses in figs. 1-8 a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD), the method comprising forming a first rigid support substrate 34 selected from glass or plastic (as in clam 8) with trenches 38/102; forming a first flexible substrate 22 selected from metal or plastic (as in claim 9) overlying the first rigid support substrate; injecting adhesive into the trenches of the first rigid support substrate; and curing the adhesive.

As for the purpose of curing the said adhesive (to attach the first flexible substrate to the first rigid support substrate) recited in the claim, it refers to a function. However, a recitation of an intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Regarding claim 3, Ge discloses (col. 7, lines 1-30) depositing a plurality of patterned circuit films overlying the first flexible substrate, forming TFTs; forming liquid crystal (LC) layer 52 overlying the TFTs; and forming a color filter layer 24 over the LC layer.

11. Claims 1, 2, 5 and 6, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Matsushita.

Matsushita discloses in figs. 1-3 a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD), the method comprising forming a first rigid support substrate 5 selected from glass (as in clam 8) with trenches (see recessed regions); forming a first flexible substrate 3 overlying the first rigid support substrate; injecting adhesive 4 into the trenches of the first rigid support substrate; and curing the adhesive to attach first flexible substrate to the first rigid support substrate.

As for the purpose of curing the said adhesive (to attach the first flexible substrate to the first rigid support substrate) recited in the claim, it refers to a function. However, a recitation of an intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963).

As for claim 2, Matsushita discloses detaching first rigid support substrate and adhesive from first flexible substrate 3.

As for claims 5 and 6, Matsushita discloses in fig. 8 injecting the adhesive in a vacuum environment, wherein the trenches include at least one mouth 14; wherein injecting adhesive into a support substrate trench includes creating a vacuum environment in the support substrate trenches; supplying adhesive 4 to the at least one mouth of the first rigid support substrate

trenches; in response to returning the support substrate to ambient pressure, pulling the adhesive into the first rigid support substrate trenches vacuum environment through the at least one mouth.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 11, 12, 15, 16 and 18, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita in view of Sundahl et al. ("Sundahl") US PG-Pub 2002/0084536.

Matsushita discloses in fig. 3 a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD), the method comprising forming a first rigid support substrate 5 selected from glass (as in clam 18); distributing a first pattern of spacers 7, consisting of non-communicating spacer channels between the spacers, overlying the first rigid support substrate; forming a first flexible substrate 3 overlying the first pattern of spacers; injecting adhesive into the spacer channels; and curing the adhesive to attach first flexible substrate to the first rigid support substrate, but does not disclose a preformed pattern of spacers.

Sundahl discloses (see fig. 8 and par. 0044) a method of fabrication of a liquid crystal display (LCD) including a preformed pattern of spacers 602.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Sundahl's teachings with Matsushita's since that would maintain

mechanical integrity during the process of attaching the lower and upper panels as taught by Sundahl.

As for the purpose of curing the said adhesive (to attach the first flexible substrate to the first rigid support substrate) recited in the claim, it refers to a function. However, a recitation of an intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963).

As for claim 12, Matsushita discloses detaching first rigid support substrate and adhesive from first flexible substrate 3.

As for claims 15 and 16, Matsushita discloses in figs. 8 and 9 injecting the adhesive in a vacuum environment, wherein the spacer channels include at least one mouth 14; wherein injecting adhesive into a spacer channels includes creating a vacuum environment in the spacer channels; supplying adhesive 4 to the at least one spacer channel mouth; returning the first rigid substrate to ambient pressure; and in response to returning the support substrate to ambient pressure, pulling the adhesive into the spacer channels vacuum environment through the at least one mouth.

14. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita in view of Sundahl as applied to claim 11 above, and further in view of Tsubota et al. ("Tsubota") USPN 5,629,787.

The combined references disclose a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD) as recited in the claim, but do not specifically teach forming TFTs; liquid crystal (LC) layer overlying the TFTs; and forming a color filter layer over the LC layer.

Tsubota discloses forming TFTs 11; forming liquid crystal (LC) layer 6 overlying the TFTs; and forming a color filter layer 15 over the LC layer.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Tsubota's teachings since that would provide an LCD with a high contrast as taught by Tsubota.

15. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita in view of Sundahl as applied to claim 11 above, and further in view of Ge.

The combined references disclose a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD) as recited in the claim, but do not specifically teach employing a material selected from the group plastic and metal films to form a flexible substrate.

Ge discloses a method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD) including employing a material selected from the group plastic and metal films to form a flexible substrate 22.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Ge's teachings since that would enhance the aperture ratio as taught by Ge.

16. Claims 4, 7, 14 and 17, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita in view of Pai USPN 6,612,888.

Matsushita discloses the method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD) as recited in the claim, but do not specifically disclose supplying an N (2) atmosphere at ambient pressure.

Pai discloses (see figs. 5-8, col. 2, lines 63-67, col. 3, lines 1-20 and col. 5, lines 1-33) method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD) including supplying an N (2) atmosphere at ambient pressure.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Pai teachings since that would eliminate the formation of air bubbles which affect the performance of the device as taught by Pia.

As for claims 4 and 14, it would have been obvious to form said second flexible and rigid substrates and injecting and curing said adhesive, since it has been held that mere duplication of the essential working parts of a process involves only routine skill in the art. St. Regis Paper Co. v. Bemis Co., 193 USPQ 8.

17. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita in view of Matsui (of record).

Matsushita discloses the method for mounting a flexible substrate during the fabrication of a liquid crystal display (LCD) as recited in the claim, but do not specifically the steps of forming said support substrate with trenches.

Matsui discloses (see fig. 107 and col. 25, lines 19-31) a support substrate with trenches including forming a rigid support 802 with a top surface; forming a photoresist pattern 807 with openings exposing the underlying support substrate top surface; etching the exposed support

substrate top surface to form the trenches 821 in the support substrate; and removing the photoresist.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Matsui's teachings since that would increase uniformity as taught by Matsui.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS
June 27, 2004

Minhloan Tran
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Art Unit 2826